



THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the
TOWN OF COBALT

1966

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ONTARIO WATER RESOURCES COMMISSION

REPORT ON

A

WATER POLLUTION SURVEY

OF THE

TOWN OF COBALT

JANUARY, 1966

THE DIVISION OF SANITARY ENGINEERING

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ONTARIO WATER RESOURCES COMMISSION

REPORT

INTRODUCTION

A water pollution survey was made of the Town of Cobalt on July 14, 1965. The purpose of this survey was to locate and record all significant sources of pollution within the town. Such surveys are performed routinely, and upon request, by the Ontario Water Resources Commission as a basis for evaluating all existing and potential sources of pollution. Where sources of pollution are found, corrective action is requested by the Commission.

The information received from the town officials during this survey is gratefully acknowledged.

I GENERAL INFORMATION

The Town of Cobalt is located in the northeast portion of the Township of Coleman in the District of Timiskaming. The town, with a 1964 assessed population of 2,210 (1965 Municipal Directory), is situated on a rocky terrain on the northwest shore of Cobalt Lake.

Drainage is provided by Cobalt Lake and Mill Creek. Mill Creek, which drains the lake, flows in a northeasterly direction to Lake Timiskaming 6 miles away.

The economy of the town is based on mining developments located within the township and outlying regions.

II WATER USES

1. Municipal Water System

Water is obtained from Lake Sasaginaga. The water is screened and chlorinated for disinfection purposes and then pumped to the distribution system. Storage is provided by a 150,000 gallon standpipe located in the system. The daily water pumpage for the town is approximately 1,237,000 gallons. The services are not metered.

2. Recreational

Cobalt Lake, situated within the town boundaries, is not used for recreational purposes. Raw domestic wastes are discharged to this lake and therefore the lake is considered unfit for recreational use. Other lakes within the township and district are used for this purpose.

III WATER POLLUTION

1. Sanitary Waste Disposal

The Town of Cobalt is serviced by a system of combined sewers. Untreated sanitary wastes and storm water are discharged to Cobalt Lake and Mill Creek.

The only portion of the town that has separate sewers is Silver Street. Storm water and sanitary wastes, however, are combined before they are discharged to a drainage ditch located northeast of the Community Arena on Argentite Street. This drainage ditch runs through a valley located to the northeast of the town, and finally converges with Mill Creek about a mile downstream.

Untreated sanitary wastes and storm water from the Ontario Northland Railway Station are discharged to Cobalt Lake via a single sewer.

In the southwest portion of the town, approximately eight residences are serviced by private septic tanks and subsurface tile beds. It was reported that the septic tanks were functioning satisfactorily at the time of the survey.

2. Refuse Disposal

The refuse disposal site is located on the northern boundary of the town. It is a burn and cover type of dump. There are no watercourses in the vicinity of the dump and therefore the site does not present a surface water pollution hazard.

3. Industrial Waste Disposal

Cobalt Foundry - There are no industrial wastes of a polluting nature from this industry. Sanitary wastes are directed to the municipal sewer system.

4. Discussion of Sample Analyses

The OWRC objectives for surface waters in Ontario are as follows:

5-Day BOD - not greater than 4 ppm

M.F. Coliform Count - not greater than 2400 coliforms per 100 ml

Adequate protection for these waters, except in specific instances influenced by local conditions, should be provided if the following waste discharge concentrations are obtained:

5-Day BOD - not greater than 15 ppm
Suspended Solids - not greater than 15 ppm

The laboratory results of the bacteriological examinations and the chemical analyses of samples collected from the outfalls and watercourses are included in Table I which is appended to this report. Descriptions of the tests are also included.

All samples, collected from the sanitary sewer outfalls, revealed that the 5-Day BOD and suspended solids concentrations were in excess of OWRC maximum objectives of 15 ppm for both concentrations. Also, the high coliform counts revealed fecal pollution.

A water sample, collected from Cobalt Lake downstream from the sanitary sewer outfalls, revealed that the total coliform concentration exceeded the OWRC maximum objective of 2400 coliforms per 100 ml. A 5-Day BOD concentration of 6.0 ppm also exceeded the OWRC maximum objective of 4.0 ppm.

All of the water samples taken from Mill Creek revealed that the total coliform concentrations greatly exceeded the OWRC maximum objective of 2400 coliforms per 100 ml. This is indicative of fecal pollution.

IV SUMMARY AND CONCLUSIONS

On July 14, 1965, a water pollution survey was accomplished in the Town of Cobalt.

Results of this survey indicated that improper sewage disposal methods are being practised in the Town of Cobalt resulting in pollution of Cobalt Lake and Mill Creek.

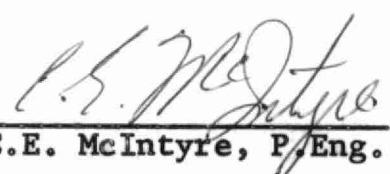
The discharge of polluting wastes to a watercourse is prohibited by the Ontario Water Resources Commission and action should be taken to correct this undesirable situation.

V RECOMMENDATIONS

Action should be taken by the municipality to initiate a water pollution control project.

All of which is respectfully submitted,

District Engineer:


C.E. McIntyre, P.Eng.,

/ec

Approved by:

J.R. Barr, Director,
Div. of Sanitary Engineering.

Prepared by: G.K. Boretski,
Engineer's Assistant.

APPENDIX

GLOSSARY OF TERMS

Bacteriological Examinations

The Membrane Filter Technique is used to obtain a direct enumeration of coliform organisms. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants.

Biochemical Oxygen Demand (BOD)

The biochemical oxygen demand test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in sewage, sewage effluent, polluted waters, or industrial wastes, by aerobic biochemical action. The time and temperature used are five (5) days and 20°C, respectively.

Solids

The analyses for solids include tests for total, suspended, and dissolved solids. Total solids is a measure of the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature whereas the dissolved solids are a measure of those solids in solution.

Turbidity

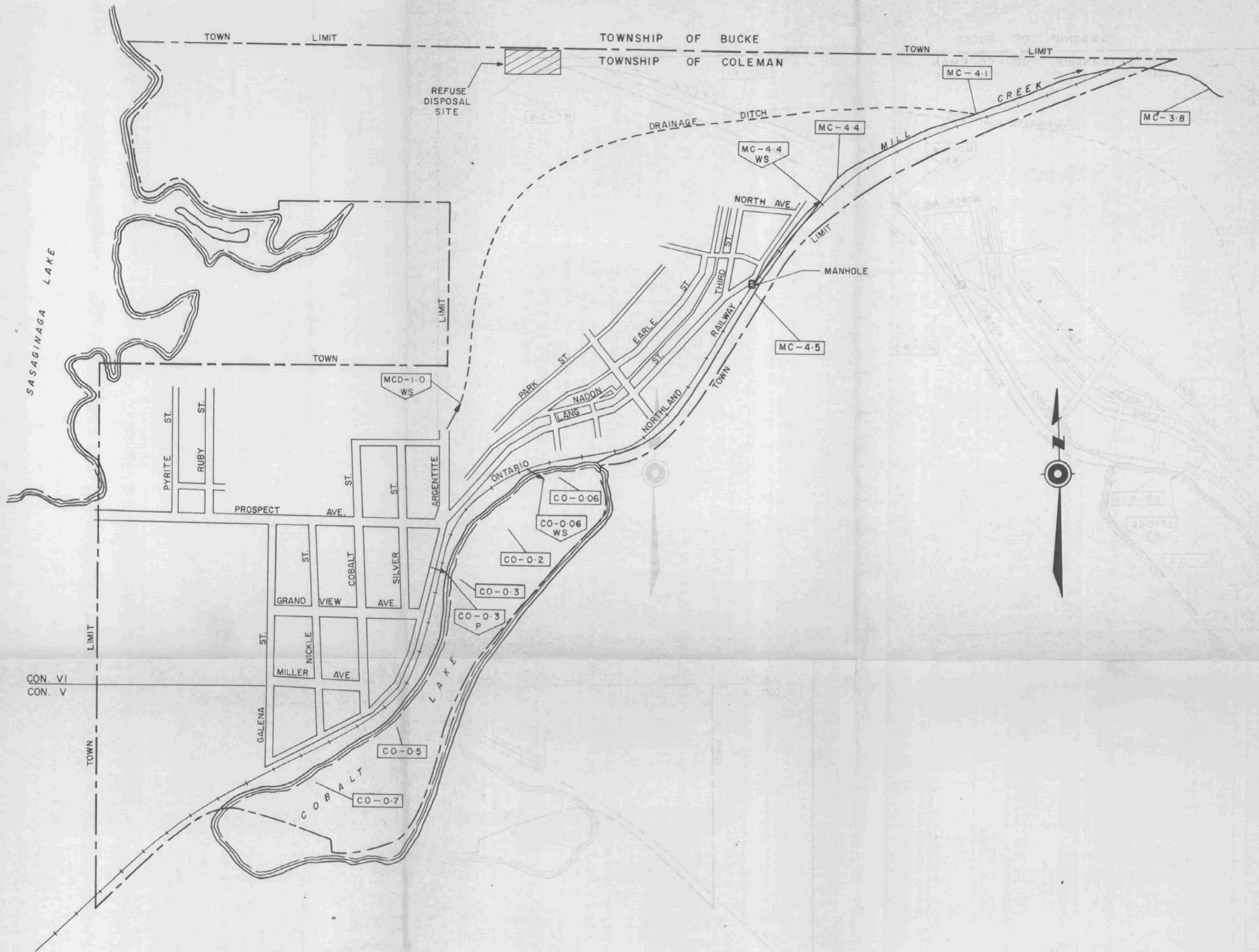
Turbidity is a measure of the fine suspended solids in water, such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in silica units.

TABLE I
TOWN OF COBALT
Tabulation of Analytical Results

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>M.F. Coliform Count per 100 ml</u>	<u>Est. DWF (gpm)</u>
				Total	Susp.	Diss.		
MC-3.8	Mill Creek at Twp. of Coleman building	July 14/65	6.4	214	8	206	98,000	
MC-4.1	Mill Creek at confluence with drainage ditch	July 14/65	3.4	386	71	315	67,000	
MC-4.4	Mill Creek downstream from sanitary sewer outfall	July 14/65	6.8	174	40	134	3,200,000	
MC-4.4 WS	Sanitary sewer outfall - submerged	July 14/65	NOT SAMPLED					
MC-4.5	Mill Creek at Hwy. No. 11b bridge dated 1915.	July 14/65	2.0	300	33	267	11,000	
CO-0.06	Cobalt Lake	Oct. 20/65 Dec. 9/65	6.0	294	18	276		10,100
CO-0.06 WS	10" Ø concrete sewer.	July 14/65	19	212	30	182	90,000,000	20
CO-0.2	Cobalt Lake	Dec. 9/65					138	

TABLE I (Cont'd)

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>M.F. Coliform Count per 100 ml</u>	<u>Est. DWF (gpm)</u>
				<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
CO-0.3	Cobalt Lake	Oct. 20/65 Dec. 9/65	6.0	266	8	258	170	
CO-0.3 P	8" Ø clay sanitary sewer from ONR Station	July 14/65	18	200	27	173	6,400,000	1.5
CO-0.5	Cobalt Lake	Oct. 20/65	2.7	278	1	277		
CO-0.7	Cobalt Lake	Oct. 20/65	1.9	286	1	285		
MCD-1.0 WS	24" Ø corrugated sanitary sewer at Argentite St.	July 14/65	40	232	48	184	100,000,000	60



LEGEND

[MC-3.8] - SAMPLING POINT SHOWING STREAM AND MILEAGE

[CO-0.3] - OUTFALL SHOWING STREAM AND MILEAGE

P - TYPE OF OUTFALL

P - PRIVATE SEWER

S - UNTREATED SEWAGE

W - STORM SEWER

LEGEND

[MC-3.8] - SAMPLING POINT SHOWING STREAM AND MILEAGE

[CO-0.3] - OUTFALL SHOWING STREAM AND MILEAGE

P - TYPE OF OUTFALL

P - PRIVATE SEWER

S - UNTREATED SEWAGE

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ONTARIO WATER RESOURCES COMMISSION

TOWN OF COBALT WATER POLLUTION SURVEY

SCALE : 600 300 0 600 FEET

DRAWN BY : L.L.B. DATE : JAN., 1966

CHECKED BY : DRAWING No: 66-8